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ABSTRACT OF THE DISCLOSURE

A method and apparatus for inspecting a surface of a semiconductor wafer having repetitive patterns for contaminant particles using scattered light which involves directing two beams of light at different approach angles which are independent from each other onto the surface in a manner so as to illuminate two stripe shaped regions on the surface. The two beams of light are positioned so that the two stripe shaped regions intersect on the surface. An imaging lens disposed above the surface collects scattered light from the surface as the semiconductor wafer is moving and then images the scattered light collected onto a CCD camera having a square array sensor and arranged to operate in a time delayed integration (TDI) mode. The field of view of the CCD camera is centered at the intersection of the two striped regions. Each light beam striking the surface of the semiconductor wafer produces a Fourier diffraction pattern of light scattered from the surface in the back focal plane of the imaging lens. The two diffraction patterns are offset from each other if the two approach angles are not symmetrically disposed relative to an axis of the wafer. In setting up the apparatus, the angle of incidence of one of the light beams is adjusted to shift one of the diffraction patterns, if necessary, so that it overlaps the other diffraction pattern. In this way, a spatial filter having masking bars sized and shaped to mask off the diffraction pattern from one beam will also mask off the diffraction pattern from the other beam. If the two approach angles are symmetrically disposed, then the two diffraction patterns overlap and adjustment of the angle of incidence of one of the beams is not necessary. The apparatus also includes an arrangement for independently setting each one of the two approach angles and independently adjusting the angle of incidence of each light beam.